Avoid Flying while impaired....

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ALCOHOL, DRUGS AND PHYSIOLOGY

Part 107

Understanding dehydration, heatstroke, stress, using over-the-counter medications, and most importantly, why all of this matters to a remote pilot-in-command.

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Drinking Alcohol

It goes without saying that drinking alcohol results in performance deterioration. Even in small amounts, alcohol can decrease the speed and strength of your muscular reflexes, coordination, and lessen the efficiency of your eye movements.

It is the Remote Pilot in Command's responsibility to ensure all participating crew members involved in the operation are not impaired by alcohol or drugs.

According to the FAA, that includes being a little hungover.

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Drinking Alcohol

- *Your blood alcohol level needs to be less than .04 percent*

- *At least 8 hours need to pass between drinking alcohol and piloting an unmanned aircraft (or taking part as another crew member)*

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Drinking Alcohol

A remote pilot with a blood alcohol level of .04 percent or greater after 8 hours cannot fly until their blood alcohol falls below that amount.

Even with blood alcohol well below .04 percent, a pilot cannot fly sooner than 8 hours after drinking alcohol. Although the regulations are very specific, it's a good idea to be more conservative than the regulations.

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The FAA takes this stuff pretty seriously.

Even just a little alcohol can impair judgment.

**It takes 3 hours for just one mixed drink to get through the body!*

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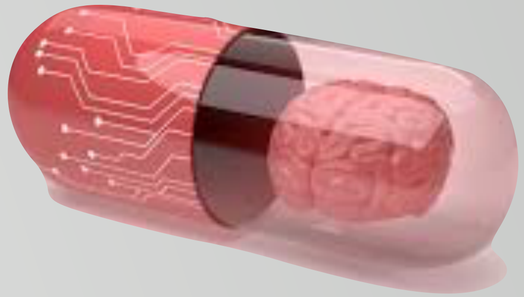
Drugs



As as far as illegal drugs go, their dangers and how they affect your judgment are pretty well documented.

Certain illegal drugs can have hallucinatory effects that occur days or weeks after the drug is taken.

Obviously, these drugs have no place in the aviation community.

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Prescription and Over-the-Counter Medication

Be smart! Yes, while taking an Aspirin here and there isn't likely to directly affect your health and decision-making capacity, when you start looking at tranquilizers, sedatives, strong pain relievers, and cough suppressants, these medications can and will impair your judgment, your memory, your alertness, coordination, vision, and the ability to make sound decisions.

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Prescription and Over-the-Counter Medication

A few health-related resources you should know as well:

- *If there is any doubt regarding the effects of any medication, contact your local Aviation Medical Examiner (AME) at this link: https://www.faa.gov/pilots/amelocator/*

- *Want more information on the possible effects on flying of using over the counter medications? You'll want to look in the Aeromedical Factors chapter of the Pilot Handbook of Aeronautical Knowledge .*

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The FAA takes alcohol and drug offenses very seriously. Similar to what you'd expect with a commercial driver's license, if you are convicted of any federal or state alcohol or drug violation, you will lose your remote pilot certificate.

You can actually lose your remote pilot certificate and/or not be allowed to apply for a certificate in the first place for up to one year if there's been any recent federal or state alcohol or drug violations. That includes refusing to submit to a blood alcohol test.

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Physiology

Understanding Physiology is important because when you bring an sUAS into the air, you are operating a serious machine that can hurt others if you're not using good judgment.

So, beware of the following general physiological impairments: dehydration, heatstroke, hyperventilation, stress, fatigue, and vision challenges.

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Dehydration and Heatstroke

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It goes without saying that if you're not feeling 100%, you might not want to consider operating your sUAS. Straight up, a couple of things you'll want to watch out for are dehydration and heatstroke.

Dehydration is when your body is critically low on water. Dehydration can be caused by exposure to the sun, to hot temperatures or high humidity, and is also affected by how much water you're drinking, what altitude you're at (you'll dehydrate much more easily at high altitude - mountain operations), and how much diuretic drinks like coffee, tea, and caffeinated soft drinks you've consumed.

Dehydration causes fatigue, which leads to dizziness, nausea, weakness, and other bad things, and all of this in turn can lead to poor decision-making.

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Dehydration and Heatstroke

DRINK WATER. While each person's physiology differs, in general its a good idea to drinking 8 glasses of water a day.

When your "thirst mechanism" fires up and you get thirsty, you're actually already dehydrated.

Stay hydrated! Bringing a water bottle with you when in the field, and consider adding "Hydration" to your pre- and post-flight checklist steps.

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Dehydration and Heatstroke

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Heatstroke is caused by an inability of the body to control its temperature. It's different from dehydration but obviously related. The same conditions causing dehydration can also cause heatstroke. Aside from drinking water, you should consider wearing loose, light clothing and a hat if it's hot outside.

While all this sounds obvious, it is a foundational part of being a smart, safe sUAS operator. Plus, the FAA includes all these concepts on their list of over 120 items you need to learn to prepare for your Aeronautical Knowledge Test, so remember this!

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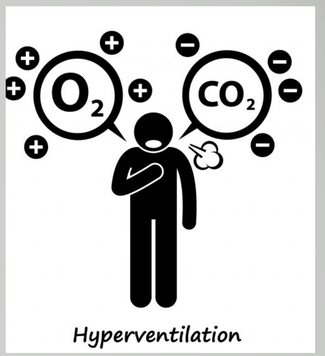
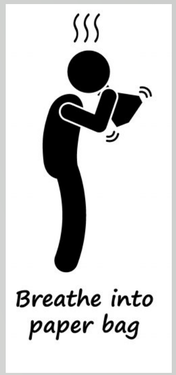
Hyperventilation

Hyperventilation is caused by breathing very quickly and exhaling more than you inhale, leading to an abnormal loss of carbon dioxide from the blood.



This leads to lightheadedness, tingling in your fingers and even fainting.
Hyperventilation can occur when you feel stress, fear, anxiety, nervousness or anger.



The best way to deal with hyperventilation is to remain calm and hold your breath or try to breathe into a paper bag or cupped hands. The idea is to increase the amount of carbon dioxide in your body.

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Stress and Fatigue

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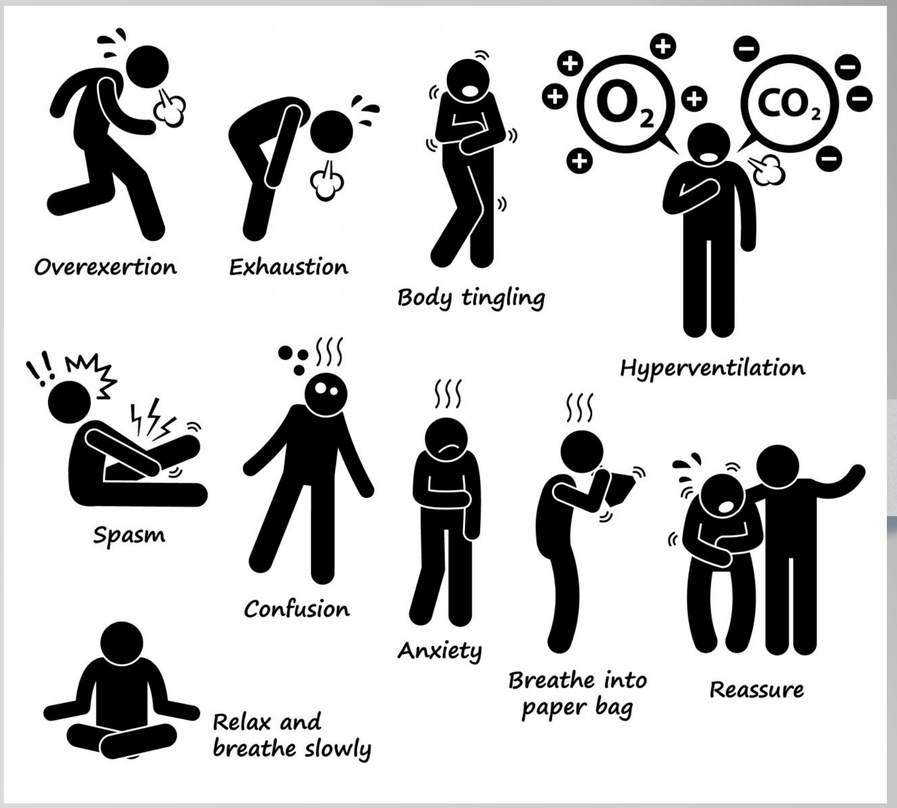
Stress is your body's response to physical and psychological demands placed upon it.

Stress increases your blood sugar, heart rate, breathing, blood pressure, and your sweat.

If you're experiencing short-term, acute stress while flying, don't panic.

Remember that in any sUAS flight emergency, rule #1 is to maintain control of your aircraft .

If you're fatigued, you're in an impaired state and should keep your sUAS on the ground.



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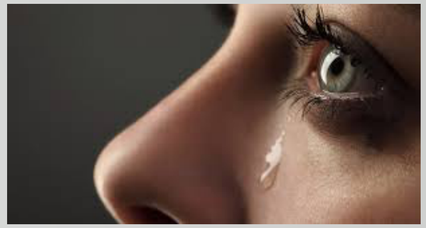
Factors Affecting Vision

Under Part 107, even with a visual observer, the remote pilot-in-command should be able to have a direct line-of-sight on his or her aircraft, meaning that you should be able to see your aircraft at all times.

Part 107



Not having full control over your vision is a legitimate reason to stay grounded.

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Fitness for Flight

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Your pre-flight checklist should include, asking yourself before every flight… "am I physically and mentally ready for this sUAS operation?"

One way to lower your risk is to use the following acronym to help you remember some important concepts:

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IMSAFE

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Fitness for Flight - IMSAFE

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One of the best ways to mitigate risk is to use the following IMSAFE acronym to help you remember important Flight Fitness considerations:

- *Illness —Am I sick? Illness is an obvious pilot risk.*

- *Medication —Am I taking any medicines that might affect my judgment or make me drowsy?*

- *Stress —Am I under psychological pressure from the job? Do I have money, health, or family problems? Stress causes concentration and performance problems. While the regulations list the medical conditions that require grounding, stress is not among them. The remote pilot should consider the effects of stress on performance.*

Part 107

- *Alcohol —Have I had a drink in the last 8 hours? As little as one ounce of liquor, one bottle of beer, or four ounces of wine can impair flying skills. Alcohol also renders a pilot more susceptible to disorientation and oxygen deficiency.*

- *Fatigue —Am I tired and not adequately rested? Fatigue continues to be one of the most insidious hazards to flight safety, as it may not be apparent to a pilot until serious errors are made.*

- *Emotion or Eating —Have I fully recovered from any recent upsetting events? Have I eaten enough of the proper foods to keep adequately nourished during the entire flight?*

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